

Abstract

We report the visual and near-infrared (0.4-2.5 μm) laboratory bi-directional reflectance of Titan tholin at cryogenic temperatures ($\sim 100\text{-}300\text{ K}$). When compared with room temperature measurements, the visual and near-infrared color of Titan tholin becomes slightly redder by $\sim 5\%$ at low temperatures in the 0.4-1.3 μm region. We estimate the influence of these color changes on the interpretation of the Centaur Pholus and find that the modest color changes will not significantly alter existing interpretations.